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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,093	08/19/2005	Martin Trommer	52201-0640	5656

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EXAMINER	
DEHGHAN, QUEENIE S	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
09/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/543,093	TROMMER ET AL.	
	Examiner	Art Unit	
	Queenie Dehghan	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☒ Claim(s) *1* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: line 13 is missing a punctuation mark. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara et al. (2002/0144517). Fujiwara discloses a method for producing synthetic silica glass comprising forming a gas stream containing an initial substance, supplying the gas stream to a reaction zone so as to convert the

initial substance into amorphous SiO2 particles, depositing the particles on a support to form a layer, vitrifying the layer to obtain silica glass ([0029], [0032], [0057], [0059]). Fujiwara further disclose an initial substance comprising a mixture of monomeric silicon compound and an oligomeric silicon compound that is already a mixture before supply the gas stream to the reaction zone ([0017], [0027], [0030], [0031], table 1 samples 1-5 & 1-6).

5. Furthermore, Fujiwara teaches balancing and optimizing a mixture of two silicon source in order to find a balance for addressing defects formed when the silica glass is irradiated with ultra-violet light. Fujiwara teaches minimizing or eliminating the chlorine content in the initial substance mixture while maximizing the hydrogen content in the initial substance mixture, since it is believe the hydrogen contributes to the prevention of ultra-violet related degradation by utilizing a balanced mixture of two silicon compounds comprising a silicon halogen compound and an organic silicon compound (page 1). Minimizing or eliminating chlorine content in the silicon source for silica deposition processes are also known and demonstrated by others skilled in the art.

6. For instance, Blackwell teaches minimizing halides, such as chlorine, in the silicon compounds used for producing silica particles, wherein the halide silicon source are replaced with other silicon sources such as octamethylcyclotetrasiloxane (OMCTS), a polyalkylsiloxane (col. 4 lines 11-35).

7. Also, Dobbins teach eliminating the use of halide based silicon compounds, such as the traditionally used $SiCl_4$ (col. 2 lines 10-37). Dobbins also teaches useful substitutes for the $SiCl_4$ includes methyltrimethoxysilane

(MTMS) and polyalkylsiloxanes such as OMCTS and hexamethyldisiloxane (HMDS) that produces silica of high purity and at deposition rates comparable to $SiCl_4$ (col. 3 lines 3-25, col. 6 lines 46-50).

8. When combining the silicon compounds into a mixture for the initial substance, Fujiwara teaches a ratio between the two silicon compounds of about 85:15 ([0027]). Fujiwara also provides examples of combination of silicon compounds used for the initial substance in Table 1, the silicon compounds including an oligomeric that is chlorine free such as HMDS, a chlorine free alkoxysilane such as MTMS, and silicon tetrachloride ($SiCl_4$). According to the teachings of Blackwell and Dobbins, a halogen silicon compound used by Fujiwara, such as $SiCl_4$ in sample no 3-1 could be replaced by a halide free silicon source such as OMCTS, hence creating a mixture of MTMS and OMCTS, wherein the ratio of silicon in the OMCTS to the total silicon is less than 60%. Or similarly in a different embodiment, the MTMS in sample no. 3-1 could be replaced by OMCTS since Dobbins teaches that OMCTS is more economical (col. 3 lines 14-19), hence creating a mixture of OMCTS and $SiCl_4$. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the silicon compound used by Fujiwara with other silicon sources such as OMCTS in the mixture of the initial substance, since it has been demonstrated that these substitutes are operable as feedstocks for producing fused silica of high purity.

9. Regarding claims 3, 9-10, and 13, Dobbins also teaches a preference to using octamethylcyclotetrasiloxane versus methyltrimethoxysilane since the latter

is less economical. Also, as mention above, Fujiwara teaches balancing between the halogen silicon compound with the organic silicon compound to achieve the resulting silica glass of high purity and improve the transmissivity and durability of the silica glass. In a mixture of OMCTS and MTMS, or OMCTS and $SiCl_4$, it would have been obvious to one of ordinary skill in the art at the time of the invention to have optimized the desired ratio between the two components (such as 45:55) in order to achieve the desired goals such as deposition efficiency and quality of the silica glass.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

Q Dehghan